WHAT IS CLAIMED IS:

1. A method for performing a fast discrete cosine transform (DCT) on an image block composed of a matrix of pixels, comprising:

calculating a block variance of an image block, said block variance indicating range of a block pixels;

determining a number of DCT coefficients to be calculated according to the block variance; and

calculating the value of DCT coefficients.

2. The method of claim 1, wherein a block variance is the range of block pixels, and determining a number of DCT coefficients nned to be calculated by comparing the block variance to at least one threshold values.

3. The method of claim 2, wherein, if the block variance is less than a first threshold value, the DCT coefficients are calculated by searching a lookup table, and the DCT coefficients are calculated by DCT transformation if the pixel range is larger than a first threshold value.

4. The method of claim 3, wherein the number of DCT coefficients need to be calculated is a limited portion of all DCT coefficients if the block variance is larger than the first threshold value and less than a second threshold value, and the number of DCT coefficients need to be calculated are all DCT coefficients if the pixel range is larger then the second threshold value.

5. The method of claim 2, wherein the pixel range of the image block indicates differences between adjacent pixels within an image block.

6. The method of claim 1, wherein only LSB bits of the pixels of an image block are calculated when determining the amount of DCT coefficients need to be calculated.

7. The method of claim 1, wherein the sub-sampling is applied for calculating variance range of block pixels to determine the amount of DCT coefficients need to be calculated.

8. The method of claim 7, wherein the sub-sampling periodically rotates selection position of a block image from a frame to another frame.

9. The method of claim 1, further providing a storage device for saving calculation result during calculating the value of DCT coefficients, and the storage device is searched for preventing unnecessary calculations when calculating the value of DCT coefficients.

10. A method for determining DCT coefficients on an image block, comprising:

comparing a variance range of block pixel differences to predetermined thresholds; and using predetermined values to represent DCT coefficients if a variance range of block pixels is within a first threshold.

11. The method of claim 10, wherein a DC coefficient of block pixels is represented by a predetermined value by comparing the variance range of a block pixels and quantization scales.

12. The method of claim 10, wherein a limited amount of AC coefficients of block pixels are represented by predetermined values.

13. A compression circuit for calculating DCT coefficients of an image block, comprising:

a calculating device for calculating a variance range of the image block;

a decision device coupled to the calculation device for discarding a number of DCT coefficients so that they don't need to be calculated to spare times of calculation, and

a DCT calculation device for performing DCT of those coefficients that need to be calculated.

14. The compression circuit of claim 13, further comprises a lookup table for storing the range of block pixels and determining a limited amount of the corresponding DCT coefficients.

15. The apparatus of claim 13, wherein a certain amount of non-zero DCT coefficients are calculated by comparing quantization scale to block pixel variance range.

16. The apparatus of claim 13, wherein block pixels are compared to decide how many LSB bits are needed in calculation of the DCT coefficients.

17. The apparatus of claim 13, wherein the MSB bits is combined with LSBs to make up the total sum of block pixels.

18. The apparatus of claim 13, wherein the MSB bits is combined with LSBs to calculate the variance of block pixels.

19. The apparatus of claim 13, wherein an operand selection unit compares a pixel to other pixels stored in a storage device to select a result of the closest pixel for further manipulation of the DCT calculations.

20. The apparatus of claim 13, wherein an output buffer storing the DCT coefficients combines results of DCT lookup table mapping and DCT calculation to form the complete DCT coefficients.